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THE DEVELOPMENT OF SECONDARY EDUCATION IN SCOTLAND

THIRD AND CONCLUDING ARTICLE

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SCIENCE AND ART

By a minute issued in August, 1897, the administration of science and art grants, in so far as Scotland was concerned, was transferred from the Department of Science and Art, South Kensington, to the Scotch Education Department. These grants were given for instruction in schools and classes of science and art; for drawing and manual instruction in elementary day schools; for drawing in evening continuation schools, and for science and art instruction in training colleges. They had been a source of income to many advanced departments and higher-class schools, either in the form of grants for instruction in particular subjects according to the syllabuses of the science and art directory, or in the form of grants to schools of science, which were, for the most part, paid on a general curriculum embracing a definite amount of instruction in specified branches of science and art. At the date of the transference there were in Scotland eleven schools of science of which eight were higher-class schools and three were secondary departments of schools aided under the code, with an enrolment of 1,194 students in the elementary course and 185 in the advanced. Furthermore, there were 254 separate institutions, including 41 higher-class schools, which, either in day or evening classes, had a total enrolment of 21,312 in science and 14,774 in art. As the total grant distributed in aid of science and art in Scotland for the year 1897 amounted to close upon £60,000 it will be seen that the duty of administering this sum was no light one.

This transference was another link in the co-ordination of

the various resources of higher education, and a further step in the direction of preventing "the overlapping and confusion of functions which must necessarily be detrimental to the best interests of education." One of the first results was the reorganization of science and art instruction in higher-class schools. By a minute of August 24, 1900 (amended May 30, 1903), a system of distributing grants for the teaching of science and art, etc., in higher-class or similar schools, not in receipt of grant under code, was outlined. Managers of such schools might submit for the approval of the Scotch Education Department a scheme of instruction under one or more of four heads: (a) physical and natural science; (b) drawing (including modeling); (c) practical geometry and educational handwork; (d) cooking, laundry work, dressmaking, or other form of practical household economy. Substantial grants, calculated on the number of hours of instruction given, were offered. Various conditions, however, had to be fulfilled before the courses were recognized, such as due provision for the teaching of subjects of general education, including a satisfactory amount of instruction in mathematics and higher arithmetic, adequate accommodation and equipment, small classes for practical instruction, a reasonable number of pupils receiving instruction in subjects under head (a) and properly qualified teachers. Moreover, grants could be claimed only upon the attendance of pupils over twelve years of age whose attainments were such as to satisfy the Scotch Education Department that they were fit to receive instruction in these subjects. This scheme has gradually superseded the previous systems in operation in higher-class schools, whether as science and art classes or as schools of science, and at the present time fifty-three higher-class schools are receiving grants under this minute. An additional stimulus has been given to science-teaching by the institution in 1899 of a leaving-certificate examination in science for those pupils who have received instruction in science in approved schools, according to a curriculum extending over at least three years. The examination is chiefly oral and practical, and based upon the profession made of the work done. The interesting feature is the association of the teacher with the

examiner in assessing the value of the pupil's work. At a later stage we shall find that this principle has been extended to several other subjects of the leaving-certificate examination.

In 1902 an examination, conducted on similar lines and under practically the same conditions, was instituted for drawing.

ADVANCED DEPARTMENTS (1899)

Already in 1898 the opinion had been expressed that specifics were frequently not carried sufficiently far to give them any real educational value, and that better results might be obtained if these subjects were confined in ordinary cases to schools in which there was a specially constituted secondary department, and where a considerable proportion of scholars remained beyond the elementary stage. In the code (1898), therefore, we find as a preliminary step that the age of candidates for the merit certificate was reduced to twelve, specific subjects as part of the examination were dispensed with, and there was now demanded thorough proficiency in reading, writing, and arithmetic, and a due instruction (code, 1899) in nature knowledge, English, geography, and history. The future of this certificate was clearly outlined:

"While it is to be taken as the evidence of the satisfactory completion of an elementary-school course, it will also serve the purpose of an entrance examination, which must be taken by all pupils whom it is proposed to enter for a course of higher education."

As to the nature of this higher instruction, the preliminary to which was to be the merit certificate, full details were given in the code (1899). The time was certainly ripe for some better system of organization of higher work in state-aided schools, for more than 60,000 pupils in these schools were over thirteen years of age, and about 6,000 over fifteen. Specific subjects, the backbone of higher education in state-aided schools since 1872, were abolished, and in place of them there was instituted a *general* course of instruction in an advanced department. The instruction had to be given according to a curriculum, specially approved by the Scotch Education Department, which should make provision for adequate instruction in English, history,

geography, arithmetic, and, as a rule, drawing; and also for instruction in languages, mathematics, and science. Liberal grants (in part obtained from the science and art grant) were offered, and payment was made, not on individual subjects as previously, but on the curriculum as a whole, the average attendance being taken as a basis. Additional grants, too, were offered for instruction in experimental science, manual instruction, cookery, laundry work, dairying, dressmaking, or practical household economy, but these were paid upon the basis of the number of hours of instruction given. In all cases the accommodation for any form of practical instruction had to be sufficient and suitable, and the teachers were required to have special qualifications for the work they undertook to teach. A much higher rate of grant was offered for schools in sparsely populated districts, provided the teaching power was shown to be adequate.

It should be noted that such a course as the above was intended for pupils who, on leaving school, would in all probability follow occupations of an industrial or commercial nature; accordingly much more importance was attached to the teaching of science, drawing, and modern languages than to subjects "which, although intellectually valuable, were less likely to be of practical use to pupils who would leave school at a comparatively early age."

HIGHER-GRADE SCHOOLS (1899)

In the same code a more highly developed advanced department was instituted under the name of "higher-grade school." A well-defined course of instruction, extending over three years at least, was demanded, and the school had to be staffed to the extent of providing at least one teacher for every thirty pupils in average attendance. Various types of higher-grade schools were contemplated, either predominantly scientific or predominantly commercial, or of a form adapted for girls or special classes of pupils. As before, certain subjects had to be common to the curriculum of each type, such as English, history, geography, higher arithmetic, and drawing. Over and above these, a higher-grade science school had to provide courses in mathe-

matics, experimental science, and manual work; whereas a higher-grade commercial school had to make provision for one or more languages, bookkeeping, shorthand, etc. Other courses varied according to the purposes for which they were provided. The grant for the average attendance was higher than for advanced departments, and was graded according to the year of the course, the grant for a pupil in the third year being almost double for one in the first. Higher rates of grant, too, were provided for the higher-grade schools in thinly populated districts. While a large measure of initiative was left to managers in proposing courses, it should be observed that the Scotch Education Department issued model schemes of instruction in science!

Ample witness to the success of these changes is borne by the statistics in the report for 1902. We find that there had been issued in that year 22,886 merit certificates; and that 374 advanced departments had been recognized as satisfactory, having a total of 8,322 scholars upon whose attendance grants were paid; and that 35 higher-grade schools had been recognized with 1,040 pupils taking a science course, 2,190 a commercial course, and 591 other courses.

SUPPLEMENTARY COURSES (1903)

But other developments were in progress; for scarcely had the system as just detailed been inaugurated when the Education Act (1901) was passed, which raised the age of exemption from attendance at school from twelve to fourteen. This at once affected the standard of the merit certificate, the purpose of which was to mark the completion of the elementary-school course. At this time many pupils qualified for the certificate, and yet, being under age, were not entitled by the new act to leave school. It was therefore necessary to provide such pupils with a systematic course of instruction other than a purely secondary course, which was far from suitable for them. Accordingly the opportunity was taken to reorganize the whole system of education in the senior classes of the elementary school. The first step was taken by fixing anew a definite standard of attainment which should mark the completion of a purely elementary edu-

cation. This stage had been previously marked by the merit-certificate examination; for the future, however, it was to be marked by the "qualifying examination," which might be taken at or about the age of twelve, but which carried with it no certificate. The next step was to institute courses of instruction under the collective name of "supplementary courses" extending over two years (age twelve to fourteen) and variously styled industrial, commercial, rural, or household management courses. The merit certificate, still retaining its primary significance as the "goal of the elementary school," was to mark the completion of such a course. Finally, advanced departments were abolished, but the option was given to the larger and better-organized of them to take the rank of higher-grade schools, and to provide, not a course predominantly scientific or commercial, but a course of a more uniform type to be called an intermediate course. The remaining advanced departments fell into the group taking supplementary courses. During the next few years a great expansion in the number of higher-grade schools occurred, so much so that in 1906 we find the number had increased to 141, and that they "covered the country like a network, hardly a single county being without one."

GROUP CERTIFICATES

Considerable changes have occurred with regard to the issuing of certificates in connection with the leaving certificate examination. Formerly certificates were issued for passes in each grade (lower, higher, or honors) of a subject without any reference to a curriculum. Obviously such a system lent itself to abuse, and the presentation of pupils in one subject for the sake of swelling returns, or gaining the grants offered in many cases by the county committee on secondary education, was quite common. A step in the direction of remedying this was taken in 1900 when a "group" certificate was issued as an experiment. By this time, however, the leaving-certificate examination had assumed large proportions. In this year 83 higher-class schools had sent in 5,307 candidates with a total of 21,086 individual presentations, and 348 higher departments had put for-

ward 11,464 candidates who sat for a total of 33,239 papers; altogether we have a total of 54,325 presentatons, involving an issue of nearly 24,000 certificates.

Two years later (1902) a considerable advance was made by instituting two classes of group certificates—the *leaving certificate* proper, which was intended to mark the completion of a full course of secondary education, and the *intermediate certificate*, which was “primarily intended to meet the case of those schools which, although they might be doing valuable work in secondary subjects, were yet unable, from one cause or another, to retain their pupils long enough to enable them to reach the standard of the Leaving Certificate proper.” Certificates for successes in individual subjects were abolished, but documents certifying to successes in particular subjects were issued. To prevent over-pressure, the minimum age at which a leaving certificate would be issued was fixed at seventeen; while the corresponding age for the intermediate was fifteen. While certain combinations of subjects were specified, certificates were not to be issued merely on the strength of the requisite number of passes in the written examinations. The Scotch Education Department had to be satisfied that the instruction given had been of adequate range and quality, and that due attention had been paid to those elements of the curriculum that did not admit of being fully tested by written examination, such as the range of reading in English, the training of the ear in modern languages, and the continuity of studies.

RECENT DEVELOPMENTS

In recent years various developments have occurred, one of the most important being in connection with leaving certificates. An attempt has been made to place the intermediate certificate upon a “satisfactory permanent basis.” In a circular issued this year (1906) it is stated that the

essential purpose of the intermediate certificate is to testify to the successful conclusion of a well-balanced course of *general* education suitable for the requirements of pupils who leave school at fifteen or sixteen, or, alternatively, of pupils who, although they continue in attendance until seventeen

or eighteen, deem it desirable to devote the last two or three years of their school life to some form of more specialized study—literary, scientific, technical, or commercial. The fundamental conditions of issue ought, therefore, to be, that the course of education, to the completion of which it testifies, is sound, judged by educational principles; that it has a clear aim and purpose; and that, in each subject of the course, the instruction is given by teachers of proved competency.

An intermediate course of instruction prepared in accordance with these principles, and extending over three years, has to be submitted to the Scotch Education Department for approval. Such a course is expected to include instruction in the following subjects: English (including geography and history), mathematics (including arithmetic), experimental science, drawing, and one other language besides English. The qualification for entering upon this course is a satisfactory pass in the qualifying examination. Only on the completion of the full course of three years may a pupil be presented for examination for the intermediate certificate..

Each subject of examination must be taken in the same year, and on the lower-grade standard. In connection with this examination a method similar to that adopted in the science examination has been followed; that is to say, the teacher and the inspector co-operate in assessing the value of the pupil's work. "In future no intermediate certificate will be granted or withheld without fair consideration of the deliberate judgment of the teachers as to the proficiency of the candidates as shown by their work in school." The institution of this general course of instruction for the intermediate certificate, as will be seen, affects the curricula of both higher-grade schools and higher-class schools. The specialized courses of the former, already discouraged, will tend to disappear, and this more or less homogeneous three-year course will take their place. With regard to the higher-class schools, since the acquisition of an intermediate certificate is to be made a condition precedent to a pupil entering upon a course of study leading up to the leaving certificate, it practically follows that such schools must adopt an approved intermediate course. How far the intermediate courses of the various schools will be approximated remains to be seen.

Thereafter the courses leading up to a leaving certificate normally extend over two years. Candidates for the certificate must have passed in four subjects on the higher-grade standard, or in three subjects on the higher-grade standard and two on the lower. Mathematics and higher English are compulsory. The remaining subjects may be science with one or more languages, or languages only. If the latter, one language must be Latin.

Other certificates, such as commercial and technical certificates, testifying to the satisfactory completion of a post-intermediate course in commercial and technical subjects, have been contemplated for those schools which provide a special staff and equipment, and which work under an approved course of instruction. Up to the present, however, they have not been very successful. As for the schools presenting candidates for the leaving-certificate examinations, we find that they had increased from 29 in 1888 to 393 in 1905; and that, in the latter year, 499 leaving certificates proper, and 841 intermediate certificates, were issued.

Important developments in the method of conducting the inspection of secondary schools, too, have occurred within the last twelve months. In the larger schools each subject or group of kindred subjects has been intrusted to an examiner, who is instructed to visit the schools twice in the year. The first visit in autumn is directed toward ascertaining the methods and aims of instruction; whereas the second is occupied with results, and particularly with the general proficiency of candidates for group certificates. Teachers are expected to keep daily records of the actual work done with pupils, so that they may at all times be available as evidence of progress. The individual examiners report to the chief inspector, who issues a report on the school as a whole. As showing the great expansion of this higher inspection, it will be remembered that in the first inspection in 1886, 38 schools were inspected; whereas in 1905 as many as 110 applied for inspection.

Finally, a change in the nomenclature of the various schools was officially introduced in this year (1906). A *primary* school is mainly concerned with elementary work, and its pupils, as a

rule, are below the age of fourteen. The certificate of merit is the goal of this school. An *intermediate* school provides a three-year course of secondary instruction, beyond the qualifying examination stage, leading up to the intermediate certificate, and corresponds generally to a higher-grade school. A *secondary* school provides at least a five-year course of secondary education beyond the same stage, and corresponds, as a rule, to a higher-class school. But these are not hard and fast distinctions. In many cases the work in the different schools overlaps, and we find a primary school with small groups of pupils taking intermediate or even secondary work. In the same way, a higher-grade school may be a full secondary school.

CONCLUSION

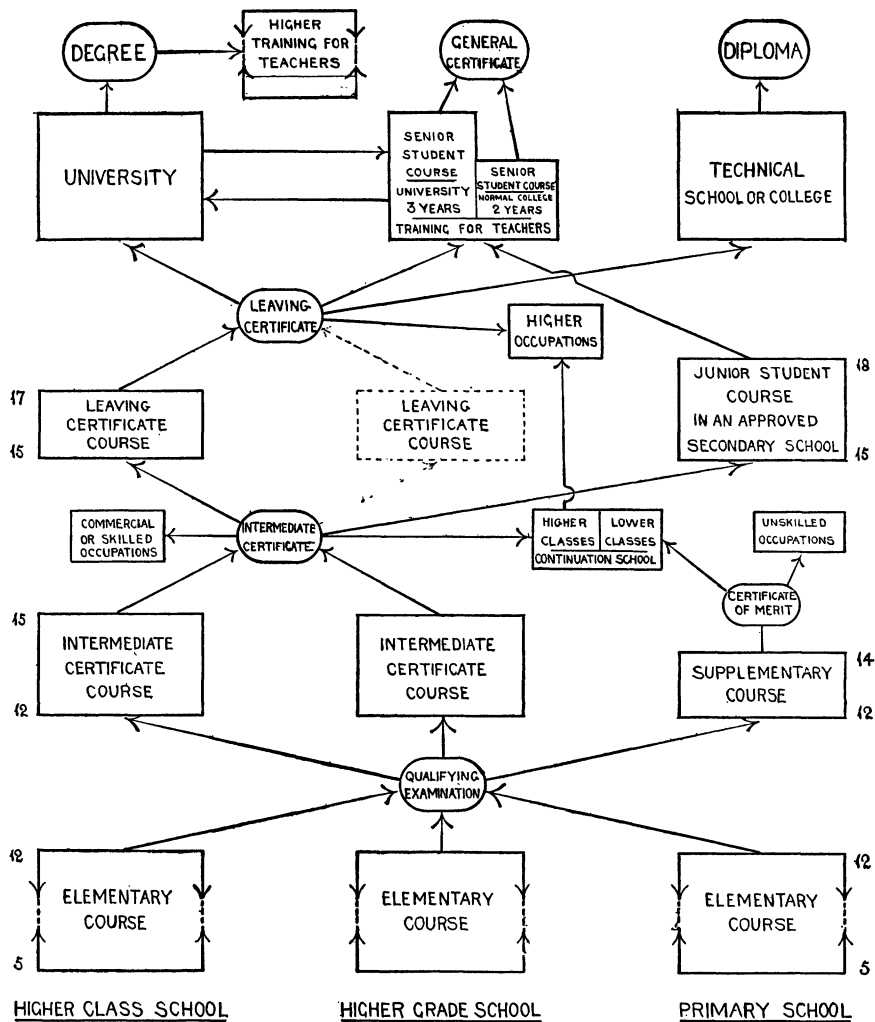
We have shown how higher-class public schools had their origin in the old burgh and grammar schools, and we have traced their developments down to the present time. We have also shown how the traditions of the old parish school, in respect of higher instruction, were conserved by means of "specifics," and that out of these in course of time there developed advanced departments and higher-grade schools on the one hand, and supplementary courses on the other. Incidentally we have commented upon the growing power of the Scottish Education Department in respect of secondary education. We have seen that its influence on the higher-class public schools was at first small, and that until 1886 it did little more than occasionally acquiesce in or disapprove of certain proposals of little importance to secondary education generally. But since then its powers have been greatly extended. By undertaking the inspection of higher-class schools in 1886, and the leaving-certificate examinations in 1888, it became an important factor in directing the organization and molding the curricula of secondary schools. A few years later (1892), through the medium of the burgh and county committees on secondary education, and the distribution of the "equivalent" grant, it acquired, inasmuch as the building, equipment, staff, and curriculum were now subject to its approval, a very large measure of control over those higher-

class schools which shared in this grant. Again, in 1897, when the administration of science and art grants in Scotland was transferred to it, a further controlling factor was introduced; while in 1899 the secondary-education grant, in which practically all the higher-class schools in Scotland participated, was directly administered and distributed by it. Finally, by its complete control of the leaving-certificate examination it has been strong enough to initiate a three-year intermediate course, and to determine its upper and lower limits; to define a leaving-certificate course, and to fix the minimum age at which the certificate shall be issued; to define intermediate and secondary education, and thence to classify every school in the country; in short, to direct and control practically the whole field of secondary education in Scotland. It would have been strange had such developments passed unchallenged, and that adverse criticism has been so ineffective is due partly to the general excellence of the changes, and partly to the wise and skilful policy which has directed them.

We cannot refrain from bestowing a few encomiums upon the two able men who have directed and energized these important movements. To Sir Henry Craik Scottish education owes much, while to his successor, Dr. Struthers, the majority of the developments in recent years are due. Through the efforts of these two men ancient and honorable traditions have been conserved, modifications due to the varying conditions of modern progress have been successfully initiated, and Scottish secondary education has been enabled to take rank as one of the best-organized educational systems in the world.

BOOKS QUOTED OR CONSULTED

1. McCrie's *Life of Melville*.
2. James Melville's *Diary*.
3. Grant's *History of the Burgh Schools of Scotland*.
4. Macmillan's *John Knox*.
5. Craik's *A Century of Scottish History*.
6. *Report by the Commissioners on Schools in Scotland* (1868).
7. *Report by the Commissioners on Endowed Institutions in Scotland* (1881).
8. Graham's *Manual of the Education (Scotland) Acts*.



DIAGRAMMATIC SCHEME OF SCOTTISH EDUCATION
(LOWER LIMIT OF AGES GIVEN)

9. *Report of the Committee on the Distribution of Science and Art Grants* (1897).
 10. *Reports by the Board of Education (Scotland)*.
 11. *Reports of the Scotch Education Department*.

APPENDIX

A TYPICAL HIGHER-CLASS PUBLIC SCHOOL

1. No. of pupils 509; of these 212 are over 15 years of age.		
2. Contributions from common good.....	£	271 14 0
Endowments	£	158 15 0
School Fees	£	2,306 8 0
Grant: county council (1892)	£	486 0 0
Grant: Secondary education (1899)	£	750 0 0
Grant: science and art	£	929 8 7
Payments from school fund	£	1,189 13 11
Other sources of income	£	188 3 2
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Total	£	6,280 2 8